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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,128	03/31/2000	Robbin Hughes	990253	3976

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Qualcomm Incorporated
Patents Department
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EXAMINER	
TRAN, KHANH C	
ART UNIT	**PAPER NUMBER**
2631	7

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/540,128	HUGHES ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The Amendment filed on 08/26/2003 has been entered. Claims 1-21 are pending in this Office action. New claims 19-21 are added.

Response to Arguments

2. Applicant's arguments after claims being amended, see pages 7 of the Amendment, filed on 08/26/2003, with respect to the rejection(s)of claim(s) 1-13 and 15-18 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made further in view of Hughes et al. U.S. Patent 6,320,849 B1.

3. The allowance of claim 14 has been withdrawn due to new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byun U.S. Patent 6,445,728 in view of Hughes et al. U.S. Patent 6,320,849 B1.

Regarding claims 1 and 15, Byun invention is directed to a method of establishing a search window size for a mobile station in a cellular system. According to one embodiment of the method, a mobile station is provided with communication services from a plurality of base transceiver stations (BTS) wherein each of the plurality of base transceivers has an inherent pilot signal. The mobile station searching for the pilot signals received at each searcher position having a constant time interval within a search window on a time-axis. The method as taught by Byun includes finding a correlation of energy value at each searcher position by which a searcher of the mobile station searches for pilot signals received from the plurality of base transceiver stations at each searcher position within a predetermined first search window and outputting a result of the searching, estimating the size of the second search window based on the results of the searching and applying the second search window size to the mobile station. Hence, Byun teachings disclose the mobile station performs a coarse search of a PN space and use the results to selects fine search parameters. Byun, however, does not disclose details of the coarse search wherein the coarse search parameters are selected by dividing a PN space, selecting a number of non-coherent passes, and selecting an integration interval. Hughes et al. teaches the foregoing deficiencies in another US patent. Hughes et al. invention utilizes a microprocessor 40 (shown in figure 4) configured to execute searches at a desired search window size selected from amongst plural possible search window sizes. It would be apparent to one of ordinary skill in the art that the plural possible search window sizes are segments in PN space. Hence, in the process, the microprocessor divides the PN space into segments and

selects a desired search window size from amongst plural possible search window sizes based on certain criteria. Then, the microprocessor 40 retrieves search parameters from a lookup table 42 (shown in figure 4), wherein the search parameters comprise an integration interval, and a number of non-coherent passes. Byun teaches a method of establishing search window size for a mobile station, but lacks the newly added limitations. Hughes et al. invention discloses dynamic control of search duration in a wireless communication device wherein Hughes et al. makes up all the deficiencies. For the foregoing reasons, it would have been obvious for one of ordinary skill in the art to modify the method of establishing search window size as taught by Byun to include Hughes et al. teachings for estimating the search window and using the result for further finer search.

Regarding claim 2, since the mobile station performs the search to establish an appropriate search window size to obtain a good quality signal on the forward channel, as the window size is getting close to the optimum size, it would have been apparent for one of ordinary skill in the art that a number of non-coherent passes would eventually reduce in comparison with the second search that is already optimized.

Regarding claim 3, for the foregoing reasons as in claim 2, it would have been apparent for one of ordinary skill in the art that the integration interval should also be reduced in comparison with the fine search.

Regarding claim 4, Byun invention further discloses if the pilot signals are received from one or a plurality of base transceiver stations, the mobile station stores the received pilot signals in a buffer for each searcher. The searcher of the mobile

station searches the stored pilot signals at each searcher position. The searcher finds a correlation energy value at each searcher position by comparing the energy of the pilot signal with a predetermined standard energy value and finds a searcher position having the strongest or highest correlation energy value. The search result information is, then, utilized to estimate the size of the second search window and apply the second search window size to the mobile station.

Regarding claims 5 and 13, referring to figure 2, Byun discloses a searcher 134 configured to received search parameters from a control logic 146, a memory 190 configured to store the search result information, the control logic 146 for passing search parameters to the searchers 134. The method of search as taught by Byun includes finding a correlation of energy value at each searcher position by which a searcher of the mobile station searches for pilot signals received from the plurality of base transceiver stations at each searcher position within a predetermined first search window and outputting a result of the searching, estimating the size of the second search window based on the results of the searching and applying the second search window size to the mobile station. From the foregoing discussion, it would have been obvious for one of ordinary skill in the art that Byun method performs a coarse search of a PN space and use the results to selects fine search parameters, and to estimate the size of the second search window for further fine search. Byun, however, does not disclose details of the coarse search wherein the coarse search parameters are selected by dividing a PN space, selecting a number of non-coherent passes, and selecting an integration interval. Hughes et al. teaches the foregoing deficiencies in

another US patent. Hughes et al. invention utilizes a microprocessor 40 (shown in figure 4) configured to execute searches at a desired search window size selected from amongst plural possible search window sizes. It would be apparent to one of ordinary skill in the art that the plural possible search window sizes are segments in PN space. Hence, in the process, the microprocessor divides the PN space into segments and selects a desired search window size from amongst plural possible search window sizes based on certain criteria. Then, the microprocessor 40 retrieves search parameters from a lookup table 42 (shown in figure 4), wherein the search parameters comprise an integration interval, and a number of non-coherent passes. Byun teaches a method of establishing search window size for a mobile station, but lacks the newly added limitations. Hughes et al. invention discloses dynamic control of search duration in a wireless communication device wherein Hughes et al. makes up all the deficiencies. For the foregoing reasons, it would have been obvious for one of ordinary skill in the art to modify the method of establishing search window size as taught by Byun to include Hughes et al. teachings for estimating the search window and using the result for further finer search.

Regarding claim 6, said claim is rejected using similar rejection argument of claim 2.

Regarding claim 7, said claim is rejected using similar rejection argument of claim 3.

Regarding claim 8, said claim is rejected using similar rejection argument of claim 5 since both claims have similar scope. Furthermore, Hughes et al. teaches that

the search engine 44 and the microprocessor 40 are configured to execute searches at a desired search window size from amongst plural possible search window sizes. Hence, one of ordinary skill in the art would recognize that before executing searches at a desired search window size, the microprocessor 40 must perform a coarse search of an entire PN space according to the coarse search parameters in order to determine the desired search window size for the next search phase.

Regarding claim 9, said claim is rejected using similar rejection argument of claim 2.

Regarding claim 10, said claim is rejected using similar rejection argument of claim 3.

Regarding claim 11, said claim is rejected using similar rejection argument of claim 4.

Regarding claim 12, said claim is rejected using similar rejection argument of claim 4. Furthermore, the strongest or highest correlation energy values as recited in claim 4 are values exceeding a pre-determined value. The information is subsequently stored in memory.

Regarding claims 14 and 19, said claim is rejected using similar rejection argument of claim 1. Furthermore, Hughes et al. further teaches that because the integration interval and number of non-coherent passes effect the amount of time required to process a complete search, the duration of search can be controlled by selection of these parameters. Hence, it would be apparent to one of ordinary skill in the

art that the number of non-coherent passes and selecting an integration interval as claimed in the instant application are addressed in Hughes et al. teachings.

Regarding claim 16, said claim is rejected using similar rejection argument of claim 2.

Regarding claim 17, said claim is rejected using similar rejection argument of claim 3.

Regarding claim 18, said claim is rejected using similar rejection argument of claim 4.

Regarding claims 20-21, the PN segments as claimed in the instant application correspond to the window size as taught by Hughes et al. and Byun. Dividing the segments equal or unequal is obviously a design choice.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 703-305-2384. The examiner can normally be reached on Tuesday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.

KCT

KHAI TRAN
PATENT EXAMINER